

What is claimed is:

1. A temperature adjustment device comprising:

a first thermoelectric cooling module;

a second thermoelectric cooling module on which the

5 first thermoelectric cooling module is provided; and

a heat generating element which is provided on the first thermoelectric cooling module and a temperature thereof is adjusted,

wherein, $20 \leq Q_d/S_1 \leq 200$,

10 where $S_1(\text{mm}^2)$ is a substrate area of the first thermoelectric cooling module on which the heat generating element is provided, and $Q_d(\text{mW})$ is an amount of generated heat of the heat generating element.

15 2. A temperature adjustment device comprising:

a first thermoelectric cooling module;

a second thermoelectric cooling module on which the first thermoelectric cooling module is provided; and

a heat generating element which is provided on the first thermoelectric cooling module and a temperature thereof is adjusted,

wherein, $0.02 \leq S_1/S_2 \leq 0.25$

25 where $S_1(\text{mm}^2)$ is a substrate area of the first thermoelectric cooling module on which the heat generating element is provided and $S_2(\text{mm}^2)$ is a substrate area on the heat dissipating side of the second thermoelectric cooling module.

3. The temperature adjustment device according to claim 1, wherein the first thermoelectric cooling module is comprised of a plurality of thermoelectric elements and substrates arranged so as to sandwich the thermoelectric elements via an electrode; and

$$5 \leq F \leq 25,$$

where F is a mode coefficient defined as Sc/h , $Sc(\text{mm}^2)$ is an area where the thermoelectric elements are joined to one of the substrates via the electrode, and $h(\text{mm})$ is a height of the thermoelectric elements joining the substrates.

4. The temperature adjustment device according to claim 2, wherein the first thermoelectric cooling module is comprised of a plurality of thermoelectric elements and substrates arranged so as to sandwich the thermoelectric elements via an electrode; and

$$5 \leq F \leq 25,$$

where F is a mode coefficient defined as Sc/h , $Sc(\text{mm}^2)$ is an area where the thermoelectric elements are joined to one of the substrates via the electrode, and $h(\text{mm})$ is a height of the thermoelectric elements joining the substrates.

5. The temperature adjustment device according to claim 1, wherein the amount of generated heat Q_d of the

heat generating element provided on the substrate is 50% or more of a heat flowing to the substrate of the first thermoelectric cooling module.

- 5 6. The temperature adjustment device according to claim 2, wherein the amount of generated heat Q_d of the heat generating element provided on the substrate is 50% or more of a heat flowing to the substrate of the first thermoelectric cooling module.

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7. The temperature adjustment device according to claim 3, wherein the amount of generated heat Q_d of the heat generating element provided on the substrate is 50% or more of a heat flowing to the substrate of the first thermoelectric cooling module.

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8. A laser module comprising:
a heat generating element;
the temperature adjustment device according to
20 claim 1; and
a sealed housing that contains the heat generating element and the temperature adjustment device,
wherein the heat generating element is a laser diode.

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9. A laser module comprising:
a heat generating element;
the temperature adjustment device according to

claim 2; and

a sealed housing that contains the heat generating element and the temperature adjustment device,

wherein the heat generating element is a laser diode.

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10. The temperature adjustment device according to claim 3, wherein,

$$40 \leq Q_d / S_{c1} \leq 500 \text{ (mW/mm}^2\text{)}$$

where S_{c1} is a junction area of all the thermoelectric
10 elements joined to the substrate of the first thermoelectric cooling module, and Q_d is an amount of generated heat of the heat generating element.